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Gravity Probe B Relativity Mission

**INSTALLATION OF DETECTOR PACKAGE ASSEMBLY  
IN CLEAN CAN**

**GP-B P0451 Rev. -**

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**Scope:** This procedure covers the installation and alignment of the DPA into the clean can.

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**Definitions:**

**Clean can:** The clean can is an aluminium container used to secure the DPA in a fixed position. The clean can fits into the clean dewar and provides an extra level of protection from contamination.

**Connector saver:** The connector saver is a buffer between test cables and the flight connector.

**Adapter:** A one to one pigtail for connecting/adapting to the inside clean can connectors.

**Important:** A shorting plug must be on the connector saver and a wrist strap shall be worn by the operator.

**Step 1 Installation:** Secure the DPA on the aluminum block with the lens pointing up. The screws holding the aluminum block to the clean can base are just loose enough to allow for alignment.

**Step 2 Electrical Connections:** Connect the DMA connector savers/adapters to the micro D connectors on the inside of the clean can. The exact location is not critical as long as the ports are labeled and recorded. The shorting plugs are now on the appropriate outside connector.

DMA part number \_\_\_\_\_

Connected to outside connector number \_\_\_\_\_

DMA part number \_\_\_\_\_

Operator \_\_\_\_\_

Connected to outside connector number \_\_\_\_\_

Date \_\_\_\_\_

**Step 3 Alignment:** The clean can is secured on the toolmakers microscope. Focus on the concentric machine marks on the bottom of the clean can. Find the center. Now move the DPA into view and align the lens center to the reticule. Tighten the screws on the base and confirm that alignment is maintained. Alignment requirements for this procedure are .010 inch or better.

**Step 4 Continuity Check:** Using the micro-D to D25 adapter connect to the outside of the clean can and verify the following impedance measurements and record the results in the table for the transmitting and reflecting DMA. The D25 breakout box is used.

## Continuity Check Results - Transmitting DMA

Operator \_\_\_\_\_ Date / Time \_\_\_\_\_ DMA # \_\_\_\_\_ Connector # \_\_\_\_\_

test #	Red Lead + Connects to	Black Lead Connects to	Fluke Meter Scale	Nominal Value	Measured Value	Comments
1	20	7	auto	15 kOhm		Heater resistor 30k    30k
2	24	23	“	35.1 k Ohm		Vdd to SRC1
3	2	14	“	.3 k Ohm		-DR to -DS
4	13	25	“	.3 k Ohm		+DR to +DS
5	11	2   14   13   25	“	20.1 k Ohm		Four separate tests 11 to 2, 23 to 14...
6	11	23	auto	o.l.		SRC1 to SRC2 reverse bias
7	23	11	“	3.6 MOhm		SRC1 to SRC2 forward bias
8	17	9	“	7.4 MOhm		Reset gate to RESV+
9	17	3	“	7.4 MOhm		Reset gate to RESV-
10	17	5	“	12.3 MOhm		Reset gate to PDK (+/- side)
11	17	23	“	20.6 MOhm		Reset gate to SRC1 (+/- side)
12	16	23	“	4.1 MOhm		VRG to SRC1 forward bias
13	23	16	“	o.l.		VRG to SRC1 reverse bias
14	19	8	diode check	.69 volts		Temp Sense diode
15	18	8	auto	120 Ohm		
16	19	6	“	120 Ohm		

Discrepancy Report - If any measurements are not within 10 % of the nominal value then re-check connections and repeat. Note operation on D-Log. **Passes Continuity Check ? [ ]** Operator \_\_\_\_\_ Time/Date \_\_\_\_\_

## Continuity Check Results - Reflecting DMA

Operator \_\_\_\_\_ Date / Time \_\_\_\_\_ DMA # \_\_\_\_\_ Connector # \_\_\_\_\_

test #	Red Lead + Connects to	Black Lead Connects to	Fluke Meter Scale	Nominal Value	Measured Value	Comments
1	20	7	auto	15 kOhm		Heater resistor 30k    30k
2	24	23	“	35.1 k Ohm		Vdd to SRC1
3	2	14	“	.3 k Ohm		-DR to -DS
4	13	25	“	.3 k Ohm		+DR to +DS
5	11	2   14   13   25	“	20.1 k Ohm		Four separate tests 11 to 2, 23 to 14...
6	11	23	auto	o.l.		SRC1 to SRC2 reverse bias
7	23	11	“	3.6 MOhm		SRC1 to SRC2 forward bias
8	17	9	“	7.4 MOhm		Reset gate to RESV+
9	17	3	“	7.4 MOhm		Reset gate to RESV-
10	17	5	“	12.3 MOhm		Reset gate to PDK (+/- side)
11	17	23	“	20.6 MOhm		Reset gate to SRC1 (+/- side)
12	16	23	“	4.1 MOhm		VRG to SRC1 forward bias
13	23	16	“	o.l.		VRG to SRC1 reverse bias
14	19	8	diode check	.69 volts		Temp Sense diode
15	18	8	auto	120 Ohm		
16	19	6	“	120 Ohm		

Discrepancy Report - If any measurements are not within 10 % of the nominal value then re-check connections and repeat. Note operation on D-Log. **Passes Continuity Check ? [ ]** Operator \_\_\_\_\_ Time/Date \_\_\_\_\_

**Step 5 Storage:** After verifying continuity store clean can in clean room until dewar is available for testing.

**Step 6 Removal:** After testing the DPA will be removed from the clean can for storage. Disconnect the DMA leaving the connector saver on the flight connector. Attach shorting plug to connector saver and store in a clean, labeled box in the clean room.

**The DPA has been carefully removed and stored:** Operator \_\_\_\_\_ Time/Date \_\_\_\_\_